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CHARLES WILLISON JOHNSON
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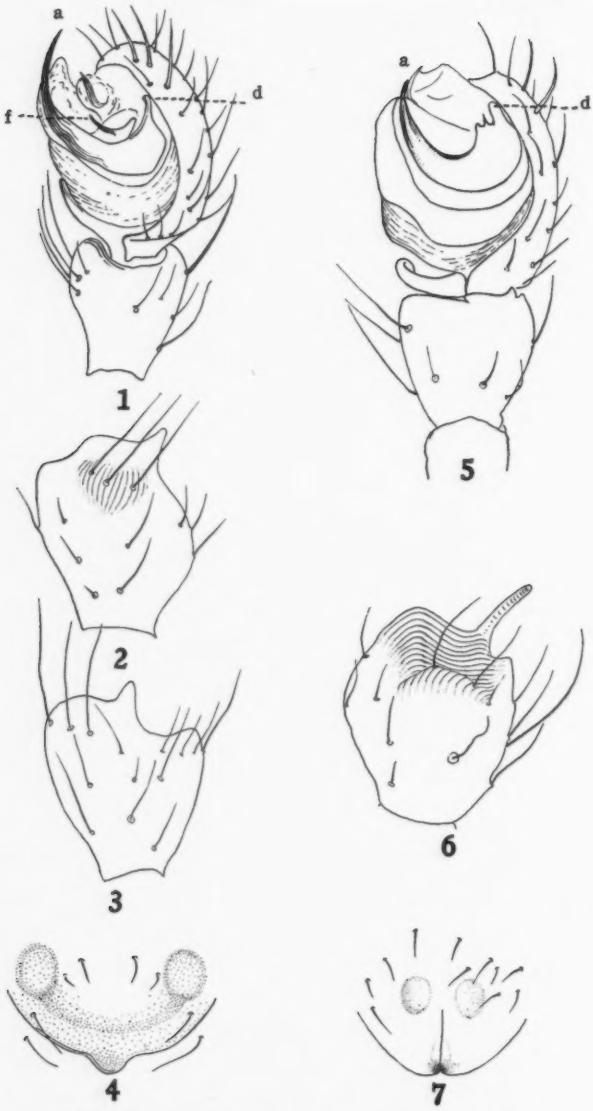

EPERIGONE AUGUSTAE 1-4, E. AUGUSTALIS 5-7
CROSBY AND BISHOP.

ENTOMOLOGICAL NEWS

VOL. XLIV. NOVEMBER, 1933 No. 9

Two New Species of Eperigone (Araneae).

By C. R. CROSBY and SHERMAN C. BISHOP.

(Plate VII)

Since our revision of *Eperigone* in 1928 (N. Y. State Museum Bul. 278) the following two new species have come to hand.

Eperigone augustae n. sp. (Plate VII, figs. 1-4).

♂. Length, 1.1 mm. Cephalothorax grayish yellow, with distinct radiating lines and margin darker; a distinct dark spot in front of dorsal furrow connected with the posterior lateral eye by curved dark lines; viewed from above evenly rounded on the sides, slightly convergent towards the front, broadly rounded in front; viewed from the side, steeply ascending behind, a slight depression at the cervical groove, then gently rounded over to the posterior eyes. Clypeus almost straight and slightly protruding.

Posterior eyes in a straight line, equal, the median separated by two-thirds the diameter and from the lateral by the radius. Anterior eyes in a straight line, the median smaller than the lateral, all separated by the radius. No tooth on face of chelicera. Sternum dark greenish with scattered minute yellow spots, broad, rounded on the sides, produced in a truncate point between the hind coxae which are separated by the diameter. Labium grayish. Endites banded with gray. Legs dusky yellowish. Palpus gray over yellow with minute light dots. Abdomen dark greenish gray with a few minute, light spots.

Femur of palpus normal and gently curved. Patella short and slightly arched above. Ratio of length of femur to that of patella as 9 to 3. Tibia longer than patella, moderately widened distally, the dorsal margin thin and depressed, the edge gently sinuate, the lateral angle produced into a short blunt tooth. Laterally from this tooth there is a smooth, semicircular excavation. Paracymbium broad at base, very strongly curved and hooked at tip. Bezel high and pointed. The embolic division is a modification of the Eperigone type, the scapium is widened and broadly rounded on the mesal side of

the bulb, the posterior tooth (a) is developed into a very long, slender, gently curved and pointed process, the mesal tooth (d) well developed, lying close to the place usually occupied by the anterior tooth which in this species seems to be lacking. The duct opens through a short slender process (f) lying in the concavity of the scapium.

♀. Length 1.1 mm. Similar to male. The epigynum of the same general form as in *augustalis* but the posterior margin is convex in the middle; the receptacles are twice their diameter apart.

Holotype, male, East Aurora, NEW YORK, May 13, 1926; *allotype*, female, Enfield Glen, New York, May 22, 1932.

New York: Voorheesville, June 19, 1923, 1 ♂ (Augusta Wolf). East Aurora, May 13, 1926, 2 ♂ (Henry Dietrich). Enfield Glen, May 22, 1932, 1 ♂ 1 ♀.

Eperigone augustalis n. sp. (Plate VII, figs. 5-7).

♂. Length 1 mm. Cephalothorax dusky over dull yellow, darker along the radiating lines, at the margin and in a patch in front of the cervical groove; viewed from above, broadly rounded on the sides, slightly crenulate, a slight constriction at the cervical groove, broadly rounded across the front; viewed from the side rather steeply ascending behind the cervical groove, then nearly level to the head which is gently rounded over the top to the posterior median eyes. Clypeus nearly straight and very slightly protruding. Sternum dark greenish-gray with small light yellow flecks. Endites dull yellow at base, darker distally. Legs dull yellow. Abdomen dark gray.

Posterior eyes in a straight line, equal, equidistant, separated by two-thirds the diameter. Anterior eyes in a straight line, the median smaller than the lateral, all separated by the radius of the median.

Femur of palpus normal, slightly curved. Patella short. Ratio of length of femur to that of patella as 16 to 5. Tibia has the dorso-lateral surface deeply excavated toward the tip and the integument thin and semi-transparent. It is armed dorso-laterally with a stiff, slightly curved, rather narrow process. Paracymbium broad at base, strongly curved and slightly hooked at tip. The embolic division of the bulb is very similar to that of *augustae* but the duct (not shown in drawing) is placed far beyond the mesal tooth (d).

♀. Length, 1.1 mm. Similar to male. Posterior eyes in a straight line, the median separated by the diameter and a little nearer the lateral. Anterior eyes in a straight line, the median

smaller than the lateral, separated by the radius and from the lateral by a little more. The epigynum strongly convex, the posterior margin strongly convex with a minute notch in the middle, marked with a dark median line and with the receptacles showing through the integument far forward, about their diameter apart.

Holotype male, *allotype*, female. Raquette Lake, NEW YORK, June 11, 1927. Also 2 male paratypes.

EXPLANATION OF PLATE VII.

1. *Eperigone augustae.* Male, right palpus, ventromesal view.
2. *Eperigone augustae.* Male, tibia of right palpus, dorsal view.
3. *Eperigone augustae.* Male, tibia of right palpus, dorsolateral view.
4. *Eperigone augustae.* Female, epigynum.
5. *Eperigone augustalis.* Male, right palpus, ventromesal view.
6. *Eperigone augustalis.* Male, tibia of right palpus, dorsal view.
7. *Eperigone augustalis.* Female, epigynum.

A New Genus and Species of the Dipterous Family Ephydridae Reared from Duck Weed.

By E. T. CRESSON, JR.

Lemnaphila scotlandae* new genus and species.

The systematic position of this species seems to be in the tribe Hydrelliae of the subfamily Notiphilinae, near the genus *Nostima*. In this treatment I am influenced by the pubescent eyes, development of the antennae, the arrangement of the dorsocentrals and the venation.

I consider the following characteristics of generic importance: Wings normally developed with the costa attaining the fourth vein and the second basal and discal cells united; eyes pubescent; medifacies bare, in profile, concaved, with epistoma protruding; arista with long hairs; dorsocentrals arranged, 0:1.1, the antesutural pair being absent. Additional characters may be gleaned from the following, rather full description of the genotype.

* Genus named on account of the species' fondness for *Lemna*.

Black; halteres pale yellow; trochanters, femora more or less basally, extremities of tibiae and bases of tarsi, yellowish. Wings immaculate, hyaline with black veins.

Subopaque with brownish suffusion; frons entirely densely cinereous to niveous from cephalic aspect; upper part of face almost shining, lower part and cheeks opaque black; upper posterior part of mesopleura densely niveous from dorsal aspect.

Head almost twice as high as long, distinctly broader than high with concaved occiput closely applied to thorax. Eyes large almost height of head, micropubescent. Frons almost twice as broad as long, with anteocellar distance about equal to transverse interocellar distance; profile convex; postocelli situated at the sharp vertex, with the divergent ocellar bristles between the postocelli situated at the sharp vertex, with the divergent ocellar bristles between the postocelli; inner and outer verticals strong; frontalia not differentiated except as blackish wedges mesad of the more or less distinct line limiting the narrow, anteriorly attenuating, parafrons. Face about one-third width of head, in profile, concaved above with obtuse interfoveal carina and strongly protruding epistoma, the epistomal margin well above the line of the buccal orbits; parafacies linear, not dilated below; facialia not marked, with about two fine dorsocinate bristles situated below line of buccal orbit and a few dorsoclinate setulae nearer the parafacial suture. Cheeks very narrow; postbuccal area convex, contiguous with occiput, with one ventroclinate bristle near oral margin. Mouth opening comparatively large, about one-half width of head; tormae narrow, compressed laterally with anterior margin reflexed. Palpi well developed, with several (about three) apical setae. Proboscis short, normal. Antennae large, nearly attaining epistoma, situated well above center-line of eyes; first segment not exserted; second broader than large, bare or microscopically pubescent, without dorsal bristle; third very broad, about one-half width of face, slightly longer than broad, truncate apically, pilose; arista twice as long as third segment, with seven long hairs above.

Thorax broad as long with convex mesonotum, bare except a few scattered acrostichal setulae; two post-dorsocentrals, the posterior pair much more widely separated than the sutural pair; about three appressed antesutural dorsocentral setulae; no humerals; one small presutural; one weak and one strong notopleurals. Mesopleura with the dorso-posterior area flat, bare, anterior and ventral areas convex and sparsely setulose; pos-

terior margin with one strong bristle. Scutellum triangular, broad as long, flat on disc basally, bare; two apical and two lateral marginal bristles.

Abdomen broad as thorax, slightly longer than broad, sparingly setulose, setulae not noticeably longer on distal margins of segments; lateral margins sharp. In the male, segments two to three subequal in length, four slightly longer, fifth pointed, longer than four.

Legs slender, bristling weak. Wings elongate; costa attaining fourth vein with humeral break but none noticeable at tip of first vein; subcosta coinciding with first at middle of costal cell; costal setae distinct but no noticeable bristle at tip of first vein; second vein short making the second costal section slightly shorter than third; veins three and four parallel; ultimate section of four distinctly longer than the preceding; discal cell narrow; posterior crossvein but slightly longer than the anterior one; vein five extending beyond posterior crossvein more than length of the latter. Length, 1.2 mm.

Type.— ♂ ; reared by Miss Minnie B. Scotland, from leaf mines in duck weed (*Lemna minor*) collected in a fish hatchery at Fall Creek, Ithaca, NEW YORK. Emerged August 25-26, 1933. [A. N. S. P. No. 6501.] *Paratypes.*—11 ♂ , 10 ♀ ; topotypical.

Orthoptera to be Found in Winter and Spring in and near Tucson, Arizona.

By MORGAN HEBARD, Philadelphia, Penna.

After numerous collecting trips in the southwest during the Summer and Fall, I was somewhat surprised to find how very few were the species of Orthoptera which survived during the winter in the comparatively mild climate of Tucson, Arizona and the adjacent foothills: Rare examples of *Trimerotropis pallidipennis pallidipennis* (Burmeister) and *Heliastus parviceps* (Walker) [1] were seen at wide intervals and even fewer individuals of *Schistocerca vaga vaga* (Scudder).

In April, 1932, almost the same as winter conditions persisted in that general region though I saw for the first time the desert green and a great variety of plants and shrubs in

[1] In recent literature this species usually has appeared as the synonym *Heliastus aridus* (Bruner).

full bloom. I was then at the Flying V Ranch at the mouth of Rock Canyon at the southern base of the Santa Catalina Mountains. There, at 2730 feet, is a grove of cottonwood trees beside a very small stream, this being in the middle of the zone in which the Sahuaro or Giant Cactus flourishes.

In my cabin an adult male of the earwig, *Spongovostox apicedentatus* (Caudell), was taken, a species which is probably present adult throughout the year in the decaying areas to be found on occasional Sahuaros. On the night of April 1st a light brown male of *Neoconocephalus triops* (Linnaeus) began singing lustily in the dead grasses under the cottonwoods and was easily taken. The next night another was heard in the same spot and, later still, one additional individual only. On April 18th a small colony of *Conozoa carinata* Rehn was located in the sandy wash of a canyon at about 2700 feet at the western base of the Santa Catalina mountains.

In late April several trips were made up Rock Canyon and the adjacent Bird Canyon as far as the zone of oaks, and from 4000 to 5000 feet the species listed in the following pages were secured. It is of interest to note that, although at that time the region about Tucson showed so little Orthopteran life, as soon as the zone of oaks was reached some of the most interesting and least known Arizona species were not only present but often adult and locally often in moderate numbers.

ACHURUM SUMICHRASTI Saussure. On hillsides thickly covered with very thick patches of a low yucca interspersed with fine grasses a few immature individuals were found at 5000 feet. The largest were about three-quarters grown in the later part of April. This Mexican insect in Arizona probably reaches its maximum adult abundance in May and June and by July has become scarce. In August and September though we have found many small individuals there locally in the foothills, we have not seen a single adult. The species was not previousy known as far north as the Santa Catalina mountains.

AMBLYTROPIDIA MYSTECA (Saussure)

A series of twelve males, six females and two large immature females were taken in the same environment, but particularly in the grassy spots, in late April. Specimens of this Mexican

species from Fort Frant, Arizona, furnished the basis for the incorrect records in past literature of *Amblytropidia occidentalis* (Saussure) from "Arizona," that insect being a closely related species occurring in the southeastern United States as far west as Alvarado in Johnson County and Colorado County, Texas. In actions close resemblance to *occidentalis* was shown, individuals springing powerfully with flight short, direct and rapid, then hiding quickly and thus difficult to capture in the thick patches of low yucca.

We have taken small immatures of *mysteca* in late September in the Tumacacori National Forest, the Santa Rita Mountains and on Atascosa Mountain near the Mexican line in Arizona but the present is the first sizeable series of adults to be secured in the United States.

Our collections now show the range of *mysteca* to extend in the United States to the Chinati Mountains in the Big Bend of the Rio Grande in Texas and southeastern Arizona. Whereas *occidentalis* in Georgia appears adult abundantly in the spring and late fall and so is probably double-brooded there, we believe that *mysteca* in the United States appears adult only in the spring and that by midsummer adults have disappeared.

AMPHITORNUS ORNATUS McNeill. One moderately large immature male was secured April 27 in this same environment; areas of fine thick grass, low mats of yucca, scattered cat-claw, sotol, prickly pear and occasional oaks. This species appears adult in the summer in Arizona, where it has never been found to occur abundantly.

HORESIDOTES PAPAGENSIS Rehn and Hebard. A few immatures in different stages were found in scant grasses under oaks on the canyon floor at 5000 feet, higher than any place we have previously found this relatively scarce species in southern Arizona.

PSOLOESA TEXANA PUSILLA (Scudder). Quite numerous in the immature stages with the last species and two adult males were secured on April 23 and 28.

SCYLLINA VIATORIA VIATORIA (Saussure). As we knew this species to be locally moderately numerous on the flats and in the foothills in the fall in southern Arizona, it was rather sur-

prising to find three adults so early—a female on April 23, males on April 27 and 28, in the same environment in which *Achurum* occurred.

ARPHIA ABERRANS Bruner. Five males and three females were taken in this same area, widely distributed but scarce and usually flushed from bare spots. The wing disk in all is amber yellow.

XANTHIPPUS CORALLIPES CORALLIPES (Haldeman)

Fourteen males, five females and one large immature female were taken among the mats of low yucca at 5000 feet. The species was there present in small colonies and the males were very alert, as a rule hiding in the yucca and then suddenly flying out rapidly.

The internal surface of the caudal femora is rich pink except in one male in which it is dark brown with a broad flesh-colored pre-genicular annulus.

Late April is the time of greatest adult abundance for this race in southern Arizona.

LEPRUS, near INTERIOR Bruner. Four males and one female were secured April 23 and 27 from 4000 to 5000 feet in similar environment but found singly on bare spots.

Nearest *interior,* described from Utah, this southern Arizonan insect may prove to be a distinct though closely related species when the genus is revised.

LACTISTA OSLARI Caudell. A single adult male was secured in Rock Canyon at 5000 feet on April 27. This is certainly about the earliest date an adult could be expected.

PLATYLACTISTA AZTECUS (Saussure). A pair were captured April 23, the observations under *Lactista oslari* applying similarly to these.

TOMONOTUS FERRUGINOSUS Bruner. Five males and seven females were secured from among dead oak leaves and small patches of scattered grasses under oaks on the canyon floor and another female in the yucca with *Achurum,* all at approximately 5000 feet.

This very interesting species appears adult in greatest numbers in the spring, rare battered individuals only being present late in the season (September).

SCHISTOCERCA VAGA VAGA (Scudder). A single male was taken at 5000 feet on April 27, a very few females having been seen down Rock Canyon to near its mouth.

POECILOTETTIX SANGUINEUS Scudder. Absent from Rock Canyon, eight males and four females were secured April 27 on a ridge to the east where the species was locally moderately abundant in grass interspersed with low plants at 4500 feet. This was an open slope just below the first oaks. It was a distinct surprise to find all individuals adult so early, as this beautiful species is very local but when it does occur is often moderately numerous both in the summer and fall. Moreover it will be noted that apparently the many species of the Melanopli of this region do not appear adult so early in the season.

Hawks Eating Dragonflies (Odonata).

In ENTOMOLOGICAL NEWS, Vol. 43, No. 9, November, 1932, p. 242, is a communication by Ralph D. Bird on "The Pigeon Hawk as an Odonatologist" in which interest is expressed in other similar information. As a contribution to the subject, it may be stated that Biological Survey files show 389 records of dragonflies in 727 stomachs of the pigeon hawk. A great many of these birds were collected at Fisher's Island, New York, a point in an important migration route for both birds and insects. The pigeon hawk's habit of preying on its fellow wayfarers has been commented on by the writer in *Nature Magazine,* Vol. 12, No. 3, September, 1928, pp. 171-172.

As to the numbers of dragonflies eaten at a meal by the pigeon hawk, they frequently exceed 10 and according to our findings may reach as high as 34. Species identified include: *Aeshna canadensis, A. constricta, A. multicolor, A. verticalis, Epiaeschna heros,* and *Anax junius,* apparently only the larger forms being taken.

Other hawks do not seem so prone to take dragonflies but several species are known to do so and their preferences also seem to be for large dragonflies, especially the common *Anax junius.*

The Mississippi kite, Cooper's hawk, sharp-shinned hawk, red-tailed hawk, red-shouldered hawk, broad-winged hawk, Swainson's hawk, marsh hawk, sparrow hawk, duck hawk, and Aplomado falcon are the species, stomach analysis in the Biological Survey has hitherto revealed as predators upon Odonata.—W. L. MCATEE, U. S. Dept. Agr., Washington, D. C.

meant dragging her prey much farther over the loose sand while the insect actually took the shortest distance on the sand to where the level, hard, and quite smooth surface of the curbing could be followed to within a few inches of her destination. She certainly took the easiest way, but how did she come to do this? What explanation of this action on her part can be offered? Did reason come in to help her solve the problem how best to get the food for her young to the place provided for it?

Dr. Marlatt Retires as Entomology Chief in U. S. Department of Agriculture.

Dr. Charles L. Marlatt, who reached his seventieth birthday on September 26, retired September 30, 1933, as Chief of the Bureau of Entomology, U. S. Department of Agriculture. Before coming to the Department, in 1889, Dr. Marlatt was assistant professor of entomology and horticulture at the Kansas State Agricultural College, where he had received B. S. (1884), M. S., and D. Sc. degrees.

Dr. Marlatt soon became associated with the administrative work of the Bureau of Entomology and served as assistant chief from 1894 to 1927. During that period he made important contributions on the life-history, habits, and methods of controlling household insects and those that attack fruit trees, cereal and forage crops, and stored-products. He also conducted technical studies on the classification of insects. He is probably best known for his work which led to the passage of the Plant Quarantine Act of 1912, designed to stop the stream of pests of plants that had been coming into the United States without restriction from Colonial times.

When Dr. Marlatt became chief of the Bureau of Entomology in 1927, he reorganized, under the authority of the Secretary of Agriculture, the plant quarantine work in the Department, bringing the sections which had been distributed in the Bureau of Entomology and the Bureau of Plant Industry under a new organization, now designated the Bureau of Plant Quarantine. For a brief period he served as chief of this bureau, as well as chief of the Bureau of Entomology. He relinquished the former position in December, 1929.—U. S. Department of Agriculture, Office of Information, Press Service.

Species and Less, an Open Letter (Lepid.: Rhopalocera).

My dear Mr. Gunder:

I have been reading your paper: "Macrolepidoptera: Species and Lower Concepts," * which you were so kind as to send me. I find myself frequently in agreement with what you write, but more frequently in conflict; and I suspect that where we disagree I will more often than not find a good company of other zoologists in my party.

I must confess that I may have mistaken your meaning in a number of cases. I find that the language which you write is a very different "form" from my New England subspecies. If I have translated incorrectly into the New England race, please correct and excuse me.

Species.

"A prime group of individuals reproducing their own in kind."

This definition I find far too inclusive, for all inheritable varieties also reproduce their like if in a "group" so that they remain uncontaminated. This will include all Mendelian forms, whether sexual like the white sulphurs, or bisexual like the many melanic geometers which have been reared in Europe; even monstrosities if they happen to be inheritable and not fatal, as much pedigree work on *Drosophila* and Man has shown. It will include all variant groups characterized by groups of inheritable characters, like the races of man, and presumably of butterflies.

In the "Lepidoptera of New York," page 8, I tried to restrict the concept by bringing in the factor of lack of fertile *cross*-breeding between species. The definition is still imperfect, but I think reaches at least 90% efficiency. I take it that you use the word "prime" not in this sense, but to set off one of the local subdivisions as primary, to be called the "species" against the others as races; whereas recent usage and the implications of the code are that no one of the subdivisions is primary, but *each* is a race, and *all together* form the species.

* Ent. News for July, November and December, 1932.

SUBSPECIES AND RACE.

I see you use these terms as synonymous. I feel that it might be better to remind the reader that after all locality (race) is not the only criterion of subspecies, which would also include such factors as host-variation (apple maggot) and even ecological surroundings (ants). The distinction may be useless in the butterflies of the West Coast, but even there I have my suspicions of *Thanaos afranius*. Certainly in the eastern members of this group *(persius)* there are three "forms" on different foods, which I have been calling species, but Skinner considered all one species. They may well turn out to be subspecies on a food basis when they are finally reared from *Baptisia*, Willow and Columbine. *Lycaena argiolus* must also be considered, as well as plenty of moths. I may also suggest (following Dr. Austin H. Clark) that *Junonia* probably has *biological* subspecies, for the nervous and sedentary strains have almost certainly a different biological background.

So I should revise your statement at the foot of p. 172 to read: "All butterfly subspecies *yet fully studied* are races" (i.e. geographical).

I take it the word "predetermined" in the definition of a race is merely a correlate of "prime" in the definition of species, and a product of the same divergence from the uses of the terms in the code.

I might add for the sake of others brought up on Staudinger and Rebel's catalogue, Jordan's publications and other works of German origin or inspiration, that this word "race" corresponds to the "varietas" of Staudinger. On the other hand I note that the "trans." of Staudinger has its traditional meaning and has nothing in common with your "transitional forms."

FORM AND VARIETY.

I think our disagreement on the uses of these two words is psychological in origin. You appear to have no need for words of inclusive meaning, while I find myself quite unable to express myself without words that will not commit me to the more restricted definitions of "subspecies," "race," "aberra-

tion," etc. I think I am following general English precedent in reserving the two words "form" and "variety" to this use. To me the word "form" implies 1, homogeneity, 2, definiteness and distinctiveness. Thus I consider it allowable for the word to be used for any thing more substantial than an individual freak up to and including a species, and to be used when because of our lack of detailed knowledge, or for better emphasis on these two qualities of distinctiveness and homogeneity, some more restrictive word is not called for. Similarly to me the word "variety" excludes "species" but is otherwise also an inclusive term, perhaps might even be stretched to include individual freaks, not biologically definite enough to make forms.

I should not accept the word "form" as you use it without some further restricting word, such as "sexual," "seasonal" and the like.

We have a serious practical difficulty, in the fact that when a new form (in this inclusive sense) is first discovered, we rarely know its status. Formerly we merely described it as a "variety," which expressly did not commit us. The recent changes in the code are bribing us to guess it to be a race in cases of doubt, for the code seems to recognize race names as taking priority, and lower names as not; but that does not alter the fact that generally *we don't know*. In any case we need the inclusive word in discussion, and shall need it till that far distant date when all the variant forms of all the species have been fully studied and put in their proper pigeon-holes.

TRANSITION.

You do not seem to realize that there are two separate and wholly distinct objections to your "transition" form. First in the way of English. The word transition, in *all* usage except your own, means an intermediate condition between two end-states, not themselves included in the series of transitions. You extend it to comprise also the rarer end form (the commoner end-form is I suppose your "species)." This objection could be easily obviated by coining a new word. The second objection is really more serious. That is, that among your transition forms you seem to include a variety of different things. You

mention *V. cardui* f. *elymi*, which is produced by cold on the pupa, and the *Euphydryas* aberrations, which are almost certainly produced in the same way, but your definition would also include mendelian forms (like all the cases of melanism yet investigated), inheritable monstrosities (your "pellucidism" is merely a mild form of the "scaleless" kind of thing you group among the "synonyms"), and I get the impression you would include variations of whatever true character which happened to fall in line with one of your eight types, and appear in both sexes. In fact I think it is safe to say that 100% of your categories "change of color" *so far as studied* are mendelian, and that 100% of the albifusism, chromatifusism and melanifusism *genetically studied* is due to external disturbance, so far as I know, by temperature abnormalities. Which is of course the reason why these categories are practically limited to the part of the world which has frost periods. In the tropics, varieties (in the broad sense) of the mendelian type are by no means rare.

MULTINOMIALS.

You state, so far as I can see arbitrarily, on p. 171, that names in your system will not go beyond the quadrinomial stage. I don't see how you figure it out. For instance I try to apply your definitions to the buckeye butterfly. Using your categories (and the frequently necessary subgenus) we have a mountain form (s. l.) from Peru, and it becomes *Precis (Junonia) lavinia hubneri* f. loc. *huacapistana*. Add the fact that the form throws a melanistic "transition form" which I did not name, but suppose you would, and that this is the sedentary phase of a species which also has a parallel series of active phases, and you see the possibilities. And we have right in Ithaca, here, the common blue: *Plebeius (Lycaenopsis) araiolus pseudargiolus* f. vern. *lucia*, tr. f. *marginata*, strictly following your scheme, for the "immaculism" of form *marginata* is limited to the spring form *lucia*. In fact this is only a first spring form, since there is a second f. vern. *violacea*, nearer to the summer than to the first spring form. And what do you do where two "transition" processes are combined.

E.g., if I understand you rightly my *Caripeta divisata* ab. *nigraria* combines albifusism and melanism. And I should not be surprized if the next *Colias* you catch is a *f. vern.*, ♀ *f.*, and *tr. f.* (say melanifusistic) of *Colias eurytheme.*

By the way, you do not seem to know that *hirsuta* is the early spring form, and not a race of *Papilio philenor.* (See Clark, Bull. 157, U. S. Nat. Mus., p. 11; I have also reared it from a wintering pupa from Boston, many years ago.) I understand that the Californian summer form also is typical *philenor,* just as in the East.

TRIVIA.

There are a few minor notes that I cannot pass over.

P. 170. I should say that all the races of a species are in *general* equally mature (including the "prime" one you call the species). Of course there are exceptions, due to retarding or accelerating local factors; *e.g.*, in the black swallowtail, the central race is more mature than the Newfoundland, Cuban and Central American ones that surround it; and in *P. machaon* the Canadian race *hudsonianus* and the Tibetan *montanus* are less mature than the other races. And it is purely arbitrary (though in line with the code) to say that a form is a subdivision of a race. It is just as logical, *e.g.*, to say that the various spring-brood forms of the common blue belong each to its race, or that the species has a spring form as a whole (let's call it *violacea*) with racial characters parallel to those of the summer forms.

P. 171. You say there is no such thing as a tr. f. of a f. ♀. There is certainly the combination, whichever you put first, and either way there are just as many names. What do you call the black-shaded female *Colias philodice* (which may have a white f. ♀) or the solid black male? And what on earth will you call a white female *C. philodice,* which happens to show the characters of ab. *rothkei?*

P. 172. I suppose "form morn." is a misprint for "norm."

P. 174. I think an altitude form might well be considered a subspecies but not a race, especially if it reappears at the same altitude in several places.

P. 175. You speak of the "misuse" of well-known classificatory terms, yet still use the term "transition form" in a way that denies the basic meaning of the word "transition."

P. 236. *A. milberti,* form *subpallida* is found east as well as west, but is rare in the humid areas (Massachusetts).

I don't understand why the eye-color series of *Drosophila melanogaster* does not constitute a typical transition-form (or pair of forms) in your sense. They make a nice series from the original red to deep brown on one side and to white on the other. Is it merely because their origin is known (except perhaps the original white eye), and do you intend to add to your definition the words "of unknown origin," calling a thing mendelian and putting it with the "aberrations" as soon as its mendelian character is proved?

P. 237. What do you call a form otherwise like a "transition form" but limited to one sex?, *e.g.* the yellow *Pieris rapae,* clean-cut and rare in the male, vague and common in the female. Does the excessively rare white male *philodice* destroy the sexual category of the common white female and make it an albinic form instead?

P. 240. Note that types are a bit ephemeral, while descriptions are more lasting. I suppose everywhere is not as bad as California, practically all of whose butterfly types disappeared during the earthly restlessness of 1906, but even in steady Europe, I find that many of Linnaeus's types are gone, and more of Cramer's have vanished or lost their labels. How many of ours will survive in another 150 years?

P. 261. You speak of the apparent lack of color variation in other orders. I think you mistake the facts; I believe the depreciation of names for color forms is not due to any such cause, but to the fact that workers in most other orders do not think such variations worth naming. All the orders have the variation; only lepidopterists, and a few coleopterists, bumblebee specialists and the like, bother to put names on them. Your footnote has the wrong premise.

P. 262. I should just like to see you put the names of the 1917 checklist in their proper categories according to your

scheme. I doubt if you could even get all the California butterflies quite to suit you.

P. 263. I knew the word "happenstance" since I was a boy. I suspect Josh Billings or some one like that invented it before I was born.

P. 265. I feel you may be trying to oversimplify *Melitaea-Euphydryas*. My impression is that the oldest color was neither red nor yellow but tawny like typical *Melitaea* and *Phyciodes*. In such a case, where different parts of the wing have gone in opposite directions at once, would you call it bichromatism?

Yours,

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Priority in Diptera.

We quote a footnote to article by Miss D. Aubertin in Ann. Mag. Nat. Hist. (10), 141. "The question of priority arises in connection with Wiedemann and Robineau-Desvoidy names of 1830, published respectively in 'Aussereuropäische zweiflügelige Insekten,' vol. ii., and 'Essai sur les Myodaires, Mémoires présentés à l'Académie Royale des Sciences de l'Institute de France,' vol. ii. According to Mr. C. D. Sherborn there is no contemporary evidence of the month in which either of these works appeared, but the former was reviewed in 'Isis' in June, 1831, while the latter was not reviewed in the same periodical until the following November. In the absence of conclusive evidence, it would appear reasonable to assume that the order in which the works were noticed in 'Isis' indicates the order in which they were published. Wiedemann's names are therefore given priority in this paper" [by Miss Aubertin].

Collecting Insects in the Canadian Rockies.

Mrs. J. Norman Henry, of Philadelphia, and her daughter, Miss Josephine Henry, have recently returned from an adventurous trip into a little known section of northern British Columbia. They left Edmonton in June and from there went to Pouce Coupee in the Peace River district from where they began a journey that took them more than 500 miles on horseback through a remote part of the Canadian Rockies. Because of an unusually heavy snow-fall during the winter, and the continual cold weather, insect life was very scarce. On a trip last year to this practically unknown entomological field, Miss Henry secured a very interesting collection of insects.—Canadian Nat. Railways.

Entomological Literature

COMPILED BY LAURA S. MACKEY UNDER THE SUPERVISION OF E. T. CRESSON, JR.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

The **figures within brackets** [ ] refer to the journal in which the paper appeared, as numbered in the list of Periodicals and Serials published in our January and June issues. This list may be secured from the publisher of ENTOMOLOGICAL NEWS for 10c. The number of, or annual **volume**, and in some cases the part, heft, &c. the latter **within** ( ) follows; then the pagination follows the **colon** :

All continued papers, with few exceptions, are recorded only at their first installments.

*Papers containing new forms or names have an * preceding the author's name.

(S) Papers pertaining exclusively to neotropical species, and not so indicated in the title, have the symbol (S) at the end of the title of the paper.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

☞*Note the change in the method of citing the bibliographical references, as* **explained above.**

Papers published in the Entomological News are not listed.

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THE MOTHS OF SOUTH AFRICA, Volume 1. SEMATURIDAE AND GEOMETRIDAE. By A. J. T. JANSE. Published by the University of Pretoria, 1932. Pp. 376, 130 text figures and 15 plates.

In 1931 I had the pleasure of visiting Professor Janse at Pretoria, and was shown his collection of the Lepidoptera of South Africa, and the Pyraloid moths of the world. Within the scope of Janse's labors, it seemed to me that the organisation of the work and the perfection of the technique left nothing to be desired. The pertinent literature appeared to be all there, minutely indexed. The morphology of the moths had been subjected to the most critical scrutiny, and the drawings illustrating the significant parts were exquisite. The first volume of The Moths of South Africa, including the Geometroid series, is therefore of great interest to students of Lepidoptera in all parts of the world. The species, so far as available, are described and illustrated, and the genera are fully diagnosed. It is evident that the Geometroids of South Africa were little known until Warren and Prout took up the study in recent years, each describing very many species. The work of these writers was so far exhaustive that Janse has only had occasion to describe seventeen new species, though his structural studies have led to the separation of many new genera. The natural history of the insects appears to be almost unknown, or at least is not discussed. The larval food-plants of a good many species are cited on the authority of Mr. E. E. Platt of Durban. The number of genera is very large, with as a rule few species to the genus. *Boarmia,* with ten species, is said to be probably composite. *Drepanogynis,* with forty-seven species, is divided into a series of subgenera, which were regarded as genera by Warren. *Semiothisa,* not divided into subgenera, has forty-nine species. This is the *Macaria* of our North American lists; we have seventeen species.

Of greater general interest is the classification of the whole order Lepidoptera, given in the form of a key on pp. 67-86. The most striking innovation here is the great reduction in the number of families. Janse says: "I mainly follow Handlirsch's view, as I quite agree that the family groups, etc., we form in Lepidoptera do not have these high values in other orders and classes of animals." This opinion may well be subject to criticism, as the study of fossils has shown the enormous antiquity of not only families but genera of insects. Thus in the North American Eocene there are primitive members of Equidae and Tapiridae, but in general the mammals are represented by wholly extinct families. The insects of the same period belong to families still living, and it is certainly true that the insect-families are more distinct judged by their long separation and

permanence, than those of mammals. It is more difficult to compare the structural differences, but I do not believe the Lepidoptera would suffer in the comparison. The wide divergence of opinion is shown by comparison with the recent "Classification of Insects," by Brues and Melander. These authors recognize 143 families of Lepidoptera, but Janse has only 32 families, and counting subfamilies, only 90. All the butterflies, except the skippers, are included in Papilionidae! The tendency of strictly morphological classifications is to unite forms having similar structures, not always taking the whole range of pertinent facts into account. If we had to classify Lepidoptera from the larvae alone, it is probable that we should assemble together the *Melitaea* group of Nymphalidae and certain of the Saturniidae, so extremely similar are the larvae of these otherwise totally diverse groups. The extraordinary Sematuridae, discussed and illustrated by Janse, have hooked antennae and much in common with Hesperiidae, but the venation allies them with Uraniidae and Epiplemidae; and Prout, getting a specimen without antennae, described it as a new geometrid genus. This family seems to have got quite lost in the Noctuoidea of Brues and Melander. Janse treats the Uraniidae and Epiplemidae as subfamilies of Geometridae, but A. G. Richards has shown that they have quite a different type of tympanum, on the second abdominal segment. In discussing the general principles of the classification of Lepidoptera, Janse says: "Most workers assume monophyletic origin—that is, they hold that genera of one family must have had one origin or very few common ancestors, and that primitive families are the remains of the ancestors of the more specialised groups. I cannot agree with this view, and hold that the present most primitive groups are not ancient, but, on the contrary, more recent, though they resemble most closely those ancient forms. For instance the Hepialidae of the present day are not, I think, the offspring in a direct line of the Hepialid ancestors of all other Lepidoptera, but are more recent forms that would, if circumstances were favorable, give rise to forms similar to certain of our present more specialised Lepidoptera." Probably few will subscribe to these doctrines, yet the cropping up here and there of characters generally supposed to belong to quite remote groups, shows how underlying tendencies may remain hidden or dormant, ready to astonish us by their appearance where we supposed they could not belong. For this reason the seemingly reasonable assumption of genetic continuity, at least in the sense of the continuous exhibition of certain characters, may sometimes be fallacious.

T. D. A. COCKERELL.

CORRECTION.—The even-numbered pages of Vol. XLIV, No. 4, are incorrectly dated Apr., '32, but should be Apr., '33.

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

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Exchange—Texas Orthoptera. F. B. Isely, Trinity University, Waxahachie, Texas.

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